



*Maths*

**For The Primary Stage**



**4<sup>th</sup>.**  
*Primary*  
**Lessons**

**First Term 2018**

# Unit 1

## *Large Numbers and Operations on them*

**Lesson 1:** Hundred thousands

**Lesson 2:** Millions, Ten Millions and Hundred Millions

**Lesson 3:** Millions (Billions)

**Lesson 4:** Operations on Large Numbers

# Lesson

# 1

## Hundred Thousand

Thousand						
Hundreds	Tens	Units		Hundreds	Tens	Units
4	5	0	,	6	0	3
four hundred fifty thousand				six hundred and three.		

Write in words

300 000

800 111

204 550

458 201

457 123

200 100



-Write in digits:Two hundred **thousand**Four hundred and three **thousand**Seven hundred and ninety **thousand**Four hundred **thousand** and oneEight hundred **thousand** and twentySeven hundred two **thousand** and elevenSix hundred thirty **thousand** and four hundredThree hundred **thousand** , two hundred and eightyFive hundred one **thousand** , four hundred and fourSeven hundred eighty two **thousand** , two hundred and sixty nine

Write the **value** and the **place value** of the circled digit in each of the following numbers.

numbers.	the value	the place value
2 <sup>7</sup> 351		
543 <sup>0</sup> 92		
156 3 <sup>4</sup> 8		
<sup>4</sup> 67 900		

Using the suitable sign  $<$ ,  $>$  or  $=$  in each  $\square$ .

132 045  $\square$  93 245

85 679  $\square$  302 001

100 074  $\square$  74 001

321 587  $\square$  321 587

Write the **greatest** and the **smallest** number that can be formed from the number cards in each of the following.

4 1 5 3 2 6

**greatest** .....

**smallest** .....

**Complete**

- Write the **greatest** 6-digit number. ....
- Write the **greatest** number formed from 6 **different** digits. ....
- Write the **smallest** 6-digit number. ....
- Write the **smallest** number formed from 6 **different** digits. ....
- Write the **smallest** number formed from 6 **different** digits and their **sum** is 15. ....
- Write the **smallest** number formed from 6 **different** digits and their **sum** is 17. ....
- Write the **greatest** number formed from 6 **different** digits and the **sum** of its units and tens digits is 7. ....



## Lesson 2

## Millions

Million			Thousand					
Hundreds	Tens	Units	Hundreds	Tens	Units	Hundreds	Tens	Units
5	2	3	4	5	0	6	0	3

five hundred twenty three million ,

four hundred fifty thousand , six hundred and three.

Write in words

1 000 000

145 000 000

2 800 111

4 204 550

10 245 120

200 457 123

-Write in digits:

Two million

Five million and nine hundred thousand

Eight million and Nine hundred six thousand

Two million and three hundred forty six thousand

Ten million, one thousand, six hundred and two

Twenty five million, seven hundred nine thousand and eleven

Thirty seven million, six hundred thirty thousand and four hundred

Forty nine million, two hundred twenty five thousand, nine hundred and three

Two hundred thirty two million, five hundred one thousand, six hundred and thirty four

Complete as the example

Example:  $7\ 435\ 218 = 7\ \text{million} + 435\ \text{thousand} + 218$

a  $2\ 405\ 396 = \dots\dots\dots \text{million} + \dots\dots\dots \text{thousand} + \dots\dots\dots$

b  $22\ 153\ 027 = \dots\dots\dots \text{million} + \dots\dots\dots \text{thousand} + \dots\dots\dots$

c  $288\ 300\ 597 = \dots\dots\dots \text{million} + \dots\dots\dots \text{thousand} + \dots\dots\dots$

d  $\dots\dots\dots = 126\ \text{million} + 412\ \text{thousand} + 576$

e  $\dots\dots\dots = 9\ \text{million} + 18\ \text{thousand} + 72$

f  $\dots\dots\dots = 44\ \text{million} + 4\ \text{thousand} + 4$

Complete as the example.

Example:  $98\ 230\ 156 = 156 + 230\ 000 + 98\ 000\ 000$

a  $352\ 936\ 147 = 147 + \dots\dots\dots + \dots\dots\dots$

b  $23\ 600\ 156 = \dots\dots\dots + \dots\dots\dots + \dots\dots\dots$

c  $803\ 651\ 028 = \dots\dots\dots + \dots\dots\dots + \dots\dots\dots$

d  $10\ 800\ 900 = \dots\dots\dots + \dots\dots\dots + \dots\dots\dots$

e  $6\ 000\ 834 = \dots\dots\dots + \dots\dots\dots + \dots\dots\dots$



# Lesson 3

## Milliards(Billions)

Milliard			Million			Thousand					
Hundreds	Tens	Units	Hundreds	Tens	Units	Hundreds	Tens	Units	Hundreds	Tens	Units
3	2	0	5	2	3	4	5	0	6	0	3

three hundred twenty milliard, five hundred twenty three million , four hundred fifty thousand , six hundred and three.

Write in words

1 000 000 000

3 400 000 000

4 145 000 000

4 204 550 002

12 701 405 540

-Write in digits:

Two milliard

Five milliard and nine million

Eight milliard ,five million, six thousand and two hundred

Thirty milliard , ninety million , fifty thousand and forty

Sixteen milliard , Two hundred fifty million, three hundred forty six thousand and twenty

Four milliard , three hundred sixteen thousand two hundred and one



Read the following numbers, then complete.

- a 8 719 645 302 ..... milliard, ..... million, ..... thousand and .....
- b 6 539 006 475 ..... milliard, ..... million, ..... thousand and .....
- c ..... 2 milliard, 163 million, 900 thousand and 8
- d ..... 5 milliard, 80 million, 70 thousand and 506

Write the **greatest** and the **smallest** number formed from the digits 7, 4, 0, 5, 3, 8, 9 and 6.

The smallest number is .....

The greatest number is .....

Write the **greatest** and the **smallest** 7-digit number formed from the digits 3, 1, 8 and 9.

The smallest number is .....

The greatest number is .....

Write the **greatest** and the **smallest** 8-digit number formed from the digits 2 and 4.

The smallest number is .....

The greatest number is .....

Find:

two 10-digit numbers with the difference between them is one **milliard** ..... and .....

two 10-digit numbers with the difference between them is one **million** ..... and .....

two 10-digit numbers with the difference between them is one **thousand** ..... and .....

# Lesson 4

## Operation on large Numbers

### Addition & Subtraction

Add:

$$\begin{array}{r} 5378558 \\ + 8201872 \\ \hline \end{array}$$

$$\begin{array}{r} 4560072 \\ + 4712788 \\ \hline \end{array}$$

$$4\ 858\ 443 + 451\ 336 = \dots\dots\dots$$

$$99\ 999\ 999 + 1 = \dots\dots\dots$$

Subtract:

$$\begin{array}{r} 9370008 \\ - 8700277 \\ \hline \end{array}$$

$$\begin{array}{r} 5307389 \\ - 890708 \\ \hline \end{array}$$

$$4\ 058\ 443 - 891\ 836 = \dots\dots\dots$$

$$1\ 000\ 000\ 000 - 1 = \dots\dots\dots$$

Ramy bought a house for LE 85 750 and a car for LE 65 250  
How much money did he pay ?

Ahmed had LE 855 000 . He bought a car for LE 70 500  
find the remaining money with him.



Samy had LE 850 000 . He bought a house for LE 280 000 and a car for LE 45 000 .  
find the remaining money.

.....

.....

The population of Egypt in 1995 was about 65 520 000 , where as it was 71 335 000 in 1999.  
Find the difference between the two numbers.

.....

In the previous year 1 356 009 tourists visited Egypt and in this year , 2 567 001 tourists .  
Find the total number of tourists in those two years .

.....

A merchant bought 1 356 789 pens .He sold 989 686 pens of them .Find the remainder of the pens .

.....

Find the product:-

$$\begin{array}{r} 23 \\ \times 5 \\ \hline \end{array}$$

.....

$$\begin{array}{r} 743 \\ \times 4 \\ \hline \end{array}$$

.....

$$\begin{array}{r} 725 \\ \times 5 \\ \hline \end{array}$$

.....

$$\begin{array}{r} 3547 \\ \times 4 \\ \hline \end{array}$$

.....

$$234 \times 4 = \dots\dots\dots$$

$$451 \times 2 = \dots\dots\dots$$

# Multiplication

**Multiply**  $243 \times 34$

$$\begin{aligned} 243 \times 34 &= 243 \times (30 + 4) \\ &= (243 \times 30) + (243 \times 4) \\ &= 7290 + 972 = 8262 \end{aligned}$$

$$\begin{array}{r} 243 \\ \times 34 \\ \hline 972 \\ + 7290 \\ \hline 8262 \end{array}$$

Diagram illustrating the distributive property:  $34 = 4 + 30$ . Arrows show the calculation of  $243 \times 4$  and  $243 \times 30$ , which are then added to get the final result.

**Multiply**

$$\begin{array}{r} 53 \\ \times 12 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ \times 14 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} 456 \\ \times 23 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} 2503 \\ \times 24 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} 1308 \\ \times 65 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} 4005 \\ \times 35 \\ \hline \\ + \\ \hline \end{array}$$

$$132 \times 75 =$$

$$\begin{array}{r} 132 \\ \times 75 \\ \hline \\ + \\ \hline \end{array}$$

$$209 \times 55 =$$

$$\begin{array}{r} 209 \\ \times 55 \\ \hline \\ + \\ \hline \end{array}$$

$$5088 \times 85 =$$

$$\begin{array}{r} 5088 \\ \times 85 \\ \hline \\ + \\ \hline \end{array}$$



1 ) January has 31 days .

How many hours are there in this month .

.....

.....

2 ) A theatre has 45 rows each consists of 39 seats

How many seats are there in the theatre ?

.....

.....

3 ) Samy traveled at a speed of 45 metres per minute , riding his bicycle . What is the distance he travels in a quarter of an hour ?  
A quarter of an hour = 15 minutes

.....

.....

4 ) Fady bought 15 kilograms of apples for PT 825 each .

Find the total price of the apples .

.....

.....

6 ) Find the product of  $42 \times 12 =$  .....

Then deduce the result of the following.

$$420 \times 12 = \dots\dots\dots$$

$$42 \times 120 = \dots\dots\dots$$

$$420 \times 120 = \dots\dots\dots$$

$$4200 \times 12 = \dots\dots\dots$$

$$42 \times 1200 = \dots\dots\dots$$

## Dividing by a 1-digit number

Find the quotient of the following : ( 8 3 4 ÷ 3 )

$$834 \div 3 = 278$$

Dividend

Divisor

Quotient

$$\begin{array}{r} 278 \\ 3 \overline{) 834} \\ \underline{6} \phantom{00} \\ 23 \phantom{0} \\ \underline{21} \phantom{0} \\ 24 \\ \underline{24} \\ 00 \end{array}$$

Divide

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 3 \overline{) 24} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 4 \overline{) 33} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 6 \overline{) 42} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 8 \overline{) 50} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 9 \overline{) 72} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 3 \overline{) 11} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 4 \overline{) 32} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 7 \overline{) 59} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} \phantom{000} \phantom{000} \\ 6 \overline{) 48} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$



# Divide

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \\ 5 \overline{) 65} \\ - \quad \text{xxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \\ 6 \overline{) 72} \\ - \quad \text{xxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \\ 3 \overline{) 81} \\ - \quad \text{xxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \quad \text{xxx} \\ 5 \overline{) 140} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \quad \text{xxx} \\ 6 \overline{) 222} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \quad \text{xxx} \\ 3 \overline{) 255} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \quad \text{xxx} \\ 5 \overline{) 640} \\ - \quad \text{xxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \quad \text{xxx} \\ 6 \overline{) 822} \\ - \quad \text{xxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} \text{xxx} \quad \text{xxx} \quad \text{xxx} \\ 3 \overline{) 714} \\ - \quad \text{xxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \\ - \quad \text{xxxxxxxxxx} \\ \hline \text{xxxxxxxxxx} \end{array}$$

$$\begin{array}{r} 5 \overline{) 4445} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} 4 \overline{) 9724} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

$$\begin{array}{r} 5 \overline{) 6045} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \\ \underline{\phantom{00000000}} \\ \phantom{00000000} \end{array}$$

\* If  $332 \times 7 = 2324$  then  $2324 \div 7 =$                      

$2324 \div 332 =$                      

\* Complete :

$$445 \div \text{...} = 5$$

$$455 \div \text{...} = 7$$

$$\text{...} \div 6 = 552$$

$$\text{...} \div 4 = 123$$

\* A hotel has 176 rooms divided equally among 8 floors .  
How many rooms are there in each floor ?

... ..



## Dividing by a 2-digit number

Find the quotient of the following : ( 5 8 5 ÷ 4 5 )

$$585 \div 45 = 13$$

Dividend

Divisor

Quotient

$$\begin{array}{r}
 013 \\
 45 \overline{) 585} \\
 \underline{45} \phantom{00} \\
 135 \\
 \underline{135} \\
 000
 \end{array}$$

Divide

$$\begin{array}{r}
 52 \overline{) 156} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 46 \overline{) 334} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 75 \overline{) 375} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 38 \overline{) 266} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 51 \overline{) 428} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 26 \overline{) 130} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 74 \overline{) 444} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 45 \overline{) 377} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

$$\begin{array}{r}
 57 \overline{) 285} \\
 \underline{\phantom{0000000000}} \\
 \phantom{0000000000}
 \end{array}$$

Divide :

$$\begin{array}{r} 32 \overline{) 800} \\ \underline{\phantom{000}} \\ \phantom{000} \end{array}$$

$$\begin{array}{r} 42 \overline{) 966} \\ \underline{\phantom{000}} \\ \phantom{000} \end{array}$$

$$\begin{array}{r} 21 \overline{) 903} \\ \underline{\phantom{000}} \\ \phantom{000} \end{array}$$

$$\begin{array}{r} 63 \overline{) 7749} \\ \underline{\phantom{0000}} \\ \phantom{0000} \end{array}$$

$$\begin{array}{r} 72 \overline{) 10224} \\ \underline{\phantom{00000}} \\ \phantom{00000} \end{array}$$

$$\begin{array}{r} 53 \overline{) 5724} \\ \underline{\phantom{0000}} \\ \phantom{0000} \end{array}$$

$$\begin{array}{r} 24 \overline{) 5616} \\ \underline{\phantom{0000}} \\ \phantom{0000} \end{array}$$

$$\begin{array}{r} 37 \overline{) 15244} \\ \underline{\phantom{00000}} \\ \phantom{00000} \end{array}$$

$$\begin{array}{r} 64 \overline{) 20736} \\ \underline{\phantom{00000}} \\ \phantom{00000} \end{array}$$



## Draft

A hotel has 204 rooms , divide equally among number of floors each floor has 12 rooms .

How many floors are there in the hotel ?

A tourism agency wanted to book some buses to transports 672 tourists to the Giza pyramids.

If each bus has holds 48 tourists .

How many buses are needed ?

In his birthday , Samer bought 7 boxes of soft drink For PT 5880 .

How much does each box cost

Nada bought a car for LE 57 900 , She paid LE 7 500 in cash and the rest will be pay in 42 equal monthly installments  
find the value of each installment

# Unit 1 General Exercises

1 Find the result for each of the following.

a  $87\,562 + 5\,429 = \dots\dots\dots$

b  $39\,057 - 14\,583 = \dots\dots\dots$

c  $3\,478 \times 9 = \dots\dots\dots$

d  $721\,014 \div 7 = \dots\dots\dots$

e  $267 \times 18 = \dots\dots\dots$

f  $62\,550 \div 25 = \dots\dots\dots$

2 Complete.

a Write the value of the underlined digit in each of the following numbers.

3 256 812 159 , 958 214 100 , 7 100 279 312

..... , ..... , .....

b Write the numbers of a in letters.

3 256 812 159 .....

.....

.....

958 214 100 .....

.....

.....

7 100 279 312 .....

.....

.....



3 Choose the number closest to the correct answer.

a  $997\,815\,100 + 1\,475\,987 = \dots\dots\dots$   
(999 million , milliard , 990 million)

b  $3\,259\,145\,000 - 3\,059\,142\,000 = \dots\dots\dots$   
(3 000 , 100 million , 200 million)

c  $8 \times 6\,958 \times 125 = \dots\dots\dots$   
(7 million , 6 million , 5 million)

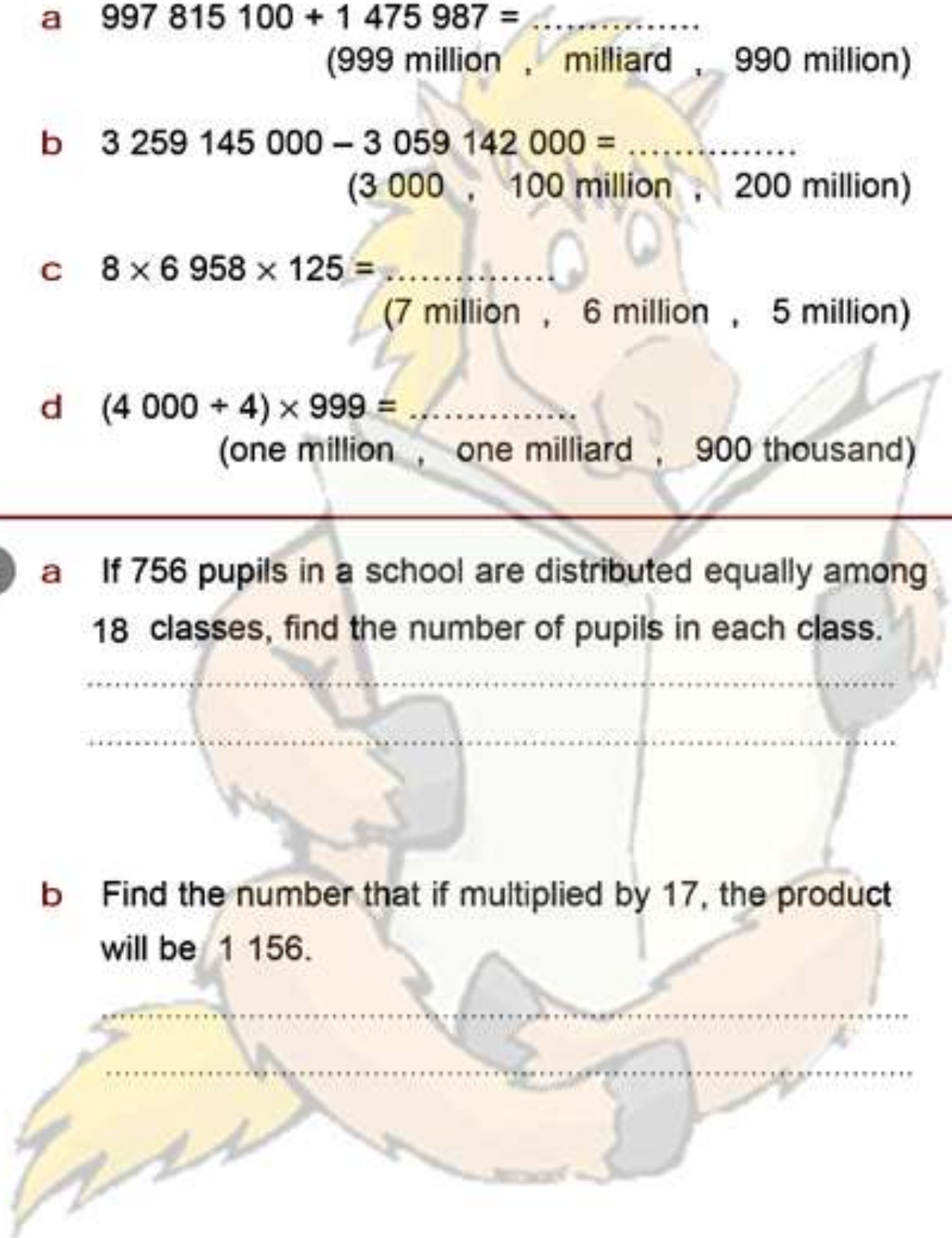
d  $(4\,000 + 4) \times 999 = \dots\dots\dots$   
(one million , one milliard , 900 thousand)

4 a If 756 pupils in a school are distributed equally among 18 classes, find the number of pupils in each class.

.....  
.....

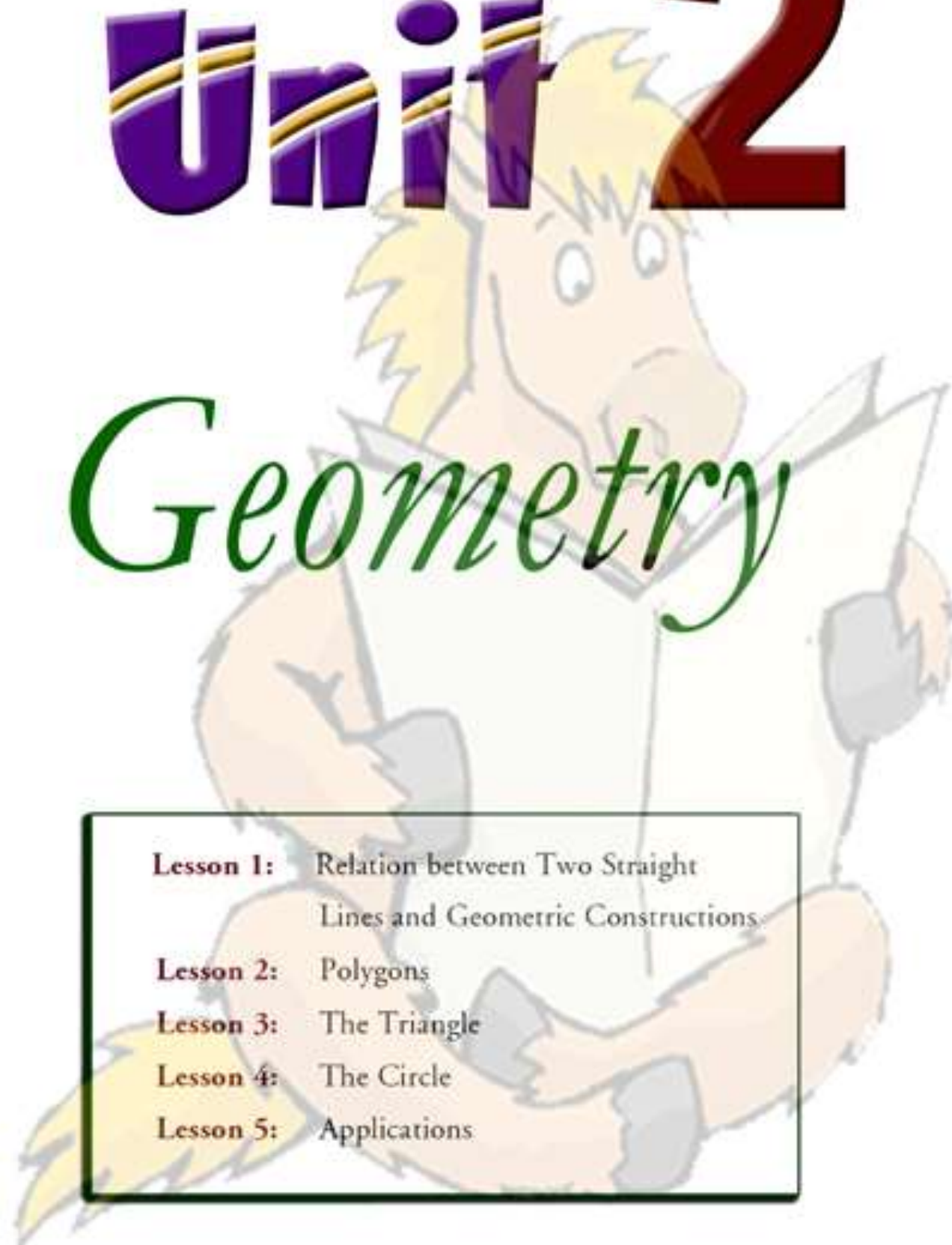
b Find the number that if multiplied by 17, the product will be 1 156.

.....  
.....



# Unit 2

## Geometry



- Lesson 1:** Relation between Two Straight Lines and Geometric Constructions
- Lesson 2:** Polygons
- Lesson 3:** The Triangle
- Lesson 4:** The Circle
- Lesson 5:** Applications

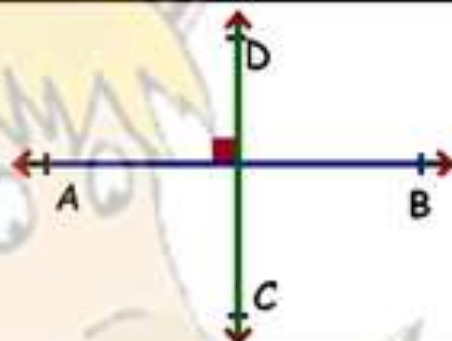


## Relation between Two Straight Lines and Geometric Constructions

### Parallel, intersecting and Perpendicular (orthogonal) lines

The two perpendicular (orthogonal) lines :

- they form four right angles at their point of intersection
- $\overrightarrow{AB} \perp \overrightarrow{CD}$  or  $\overrightarrow{CD} \perp \overrightarrow{AB}$   
 $\overrightarrow{AB}$  is perpendicular to  $\overrightarrow{CD}$



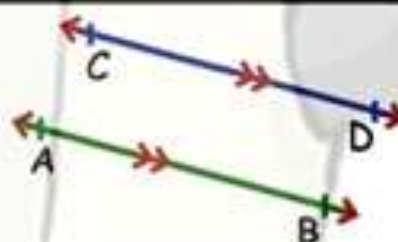
The two intersecting lines :

- They form four angles (Acute or obtuse not right)
- They intersecting at one point  
 $\overrightarrow{AB}$  and  $\overrightarrow{CD}$  are intersecting at point M



The two parallel lines :

- They never intersect at any points
- $\overrightarrow{AB} \parallel \overrightarrow{CD}$  or  $\overrightarrow{CD} \parallel \overrightarrow{AB}$   
 $\overrightarrow{AB}$  is parallel to  $\overrightarrow{CD}$



1) ABCD is a rectangle and AC , BD are two diagonals  
Complete with ( Parallel , intersecting or Perpendicular )

$\overline{AC}$  and  $\overline{BD}$  are ..... at M

$\overline{AB}$  and  $\overline{DC}$  are .....

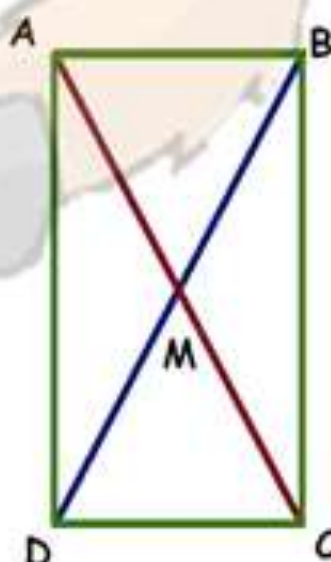
$\overline{AB}$  and  $\overline{AC}$  are ..... at .....

$\overline{BC}$  and  $\overline{BD}$  are ..... at .....

$\overline{AD}$  and  $\overline{BC}$  are .....

$\overline{BC}$  and  $\overline{BA}$  are .....

$\overline{BC}$  and  $\overline{CD}$  are .....



Notice the figure opposite, then complete.

a  $\overleftrightarrow{AB} \dots\dots\dots \overleftrightarrow{BC}$  ( $\perp$  or  $//$ )

b  $\overleftrightarrow{AB} \dots\dots\dots \overleftrightarrow{YZ}$  ( $\perp$  or  $//$ )

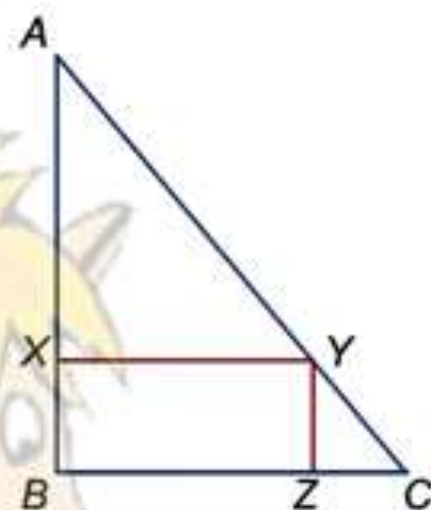
c  $\overleftrightarrow{XY} \dots\dots\dots \overleftrightarrow{BC}$  ( $\perp$  or  $//$ )

d  $\overleftrightarrow{AY}$  intersects with  $\overleftrightarrow{BZ}$  at the point

$\dots\dots\dots$

e  $\overleftrightarrow{YC}$  intersects with  $\overleftrightarrow{BX}$  at the point

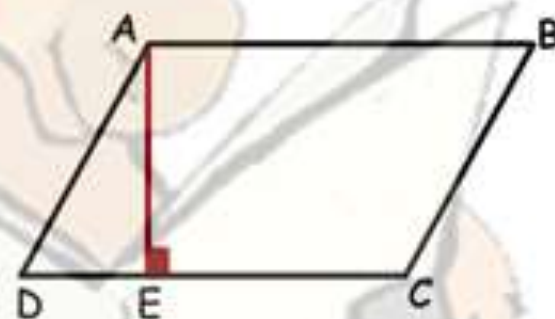
$\dots\dots\dots$



Complete using (  $//$  ,  $\perp$  or intersecting )

$\overleftrightarrow{AB} \dots\dots\dots \overleftrightarrow{CD}$   $\overleftrightarrow{AE} \dots\dots\dots \overleftrightarrow{CD}$

$\overleftrightarrow{AD} \dots\dots\dots \overleftrightarrow{BC}$   $\overleftrightarrow{AE} \dots\dots\dots \overleftrightarrow{AB}$



Choose the correct answer between brackets :

- Any two lines that never intersect are called .....  
( orthogonal. or parallel. or intersecting and not orthogonal. )
- Any two lines that intersect at a point and make four right angles are called .....  
( parallel. or intersecting and not orthogonal. or perpendicular. )
- The two **intersecting** lines intersect at .....  
( one point. or two points. or zero points. )
- The two **parallel** lines intersect at .....  
( two points. or zero points. or one point. )
- The two parallel lines make ..... angles. ( 1 or 3 or 0 )



How to draw a perpendicular to a straight line from a point on it.



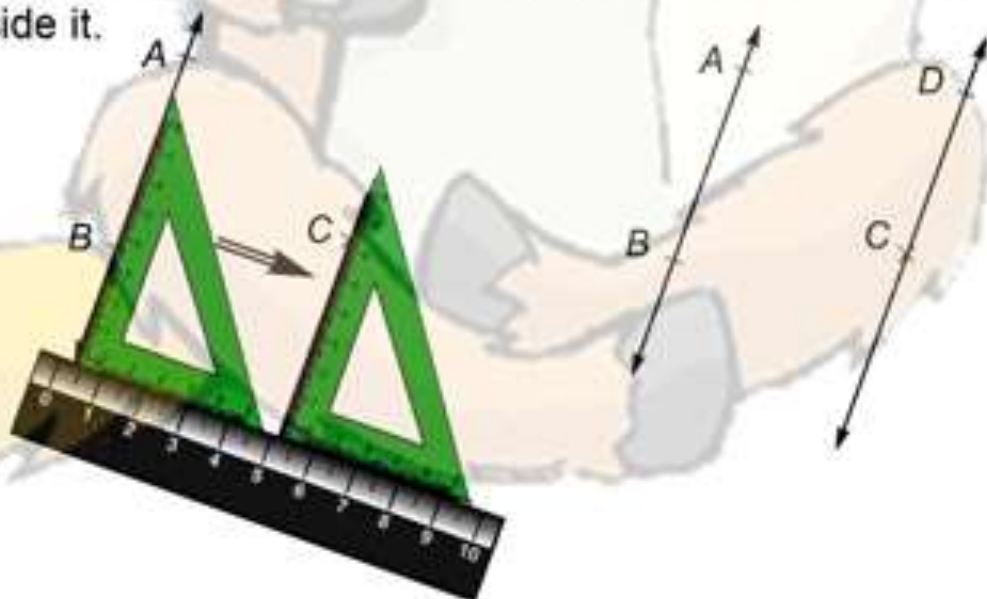
In this case, we write  $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$ .

How to draw a perpendicular to a straight line from a point outside it.



In this case, we write  $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$ .

How to draw a straight line parallel to a given straight line from a point outside it.

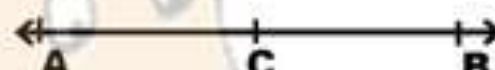


In this case, we write  $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ .

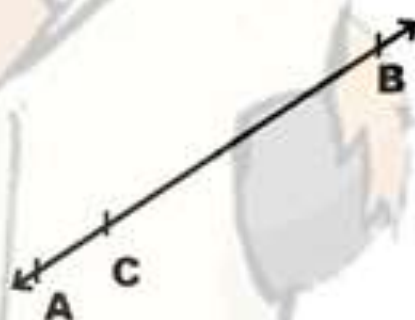
# Draw a perpendicular and a parallel

Draw  $CD \perp AB$  in the following :

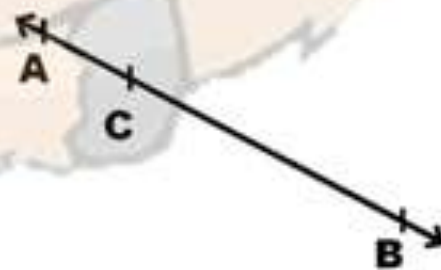
. C



. C

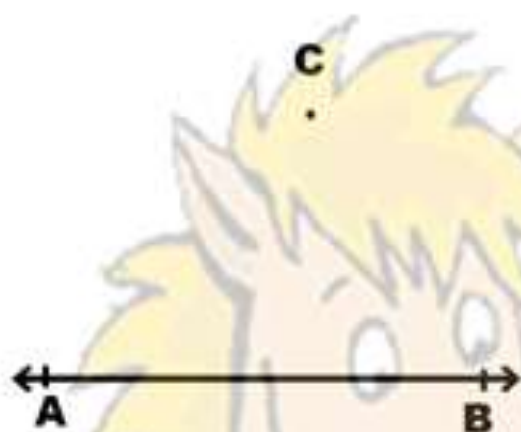


. C



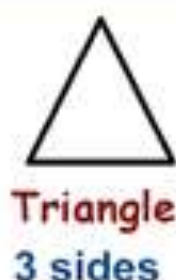


Draw  $\overleftrightarrow{CD} \parallel \overleftrightarrow{AB}$  in the following :

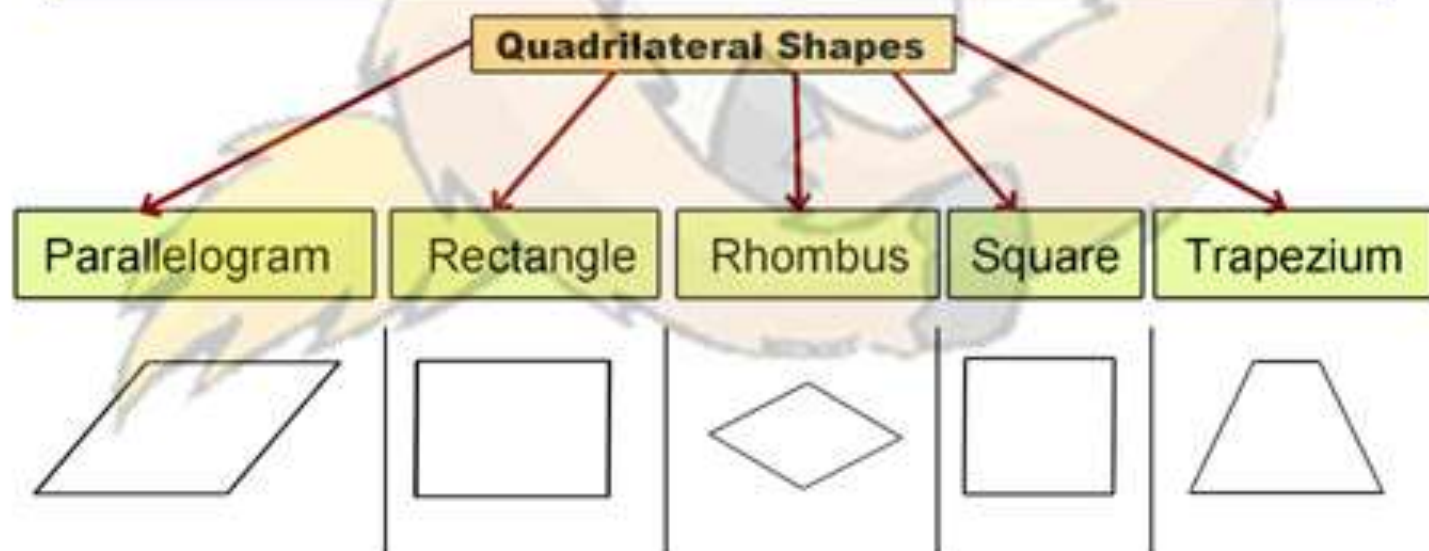


# Polygons

The Polygon is a closed shape formed from three line segments or more








The number of sides of any polygon is equal the number of its vertices and equal to the number of its angles



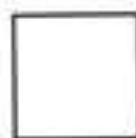


# The quadrilateral Shapes

Quadrilateral	Angles	Sides	Diagonals
 <b>Parallelogram</b>	1) 2 acute angles + 2 obtuse angles 2) Each two opposite angles are equal. 3) The sum of any two consecutive angle is $180^\circ$	Each two opposite sides are equal and parallel	- Bisect each others
 <b>Rectangle</b>	4 right angles	Each two opposite sides are equal and parallel	- Bisect each others - Equal in length
 <b>Rhombus</b>	1) 2 acute angles + 2 obtuse angles 2) Each two opposite angles are equal. 3) The sum of any two consecutive angle is $180^\circ$	1) All sides are equal in length. 2) Each two opposite sides are parallel	- Bisect each others - Perpendicular
 <b>Square</b>	4 right angles	1) All sides are equal in length. 2) Each two opposite sides are parallel	- Bisect each others - Equal in length - Perpendicular
 <b>Trapezium</b>	Only a pair of sides are parallel and not equal		



Join each figure to the suitable name.



Rectangle

Trapezium

Triangle

Rhombus

Square

Parallelogram

Put (✓) for the correct statement and (X) for the incorrect one and correct the mistake.

- The parallelogram is a quadrilateral in which each two opposite sides are parallel. ( )
- The rectangle is a quadrilateral in which each of its four angles is a right angle. ( )
- The rhombus is a quadrilateral in which all sides are equal in length. ( )
- The measure of each angle of the square =  $45^\circ$ . ( )
- Any angle of the four angles formed from the intersection of two straight lines is a right angle. ( )
- Any angle of the four angles formed from the intersection of two perpendicular straight lines is a right angle. ( )
- Two parallel straight lines are two non-intersecting straight lines. ( )
- Two perpendicular straight lines on the same straight lines are intersecting straight lines. ( )
- The diagonals of any square are perpendicular. ( )

Complete :

- The polygon which has four sides is called a .....
- The hexagon is a polygon with ..... sides , but the ..... is a polygon with three sides.
- In the square , all angles are ..... angle.
- The two diagonals of the rectangle are ..... and .....
- In the parallelogram , every two opposite sides are ..... and .....
- Each two opposite sides are parallel in ..... , ..... and .....



- g** Each two opposite sides are equal in length in ..... and .....
- h** The four sides are equal in length in ..... and .....
- i** The four angles are right in ..... and .....
- j** The diagonals in ..... and ..... are equal in length and bisect each other.

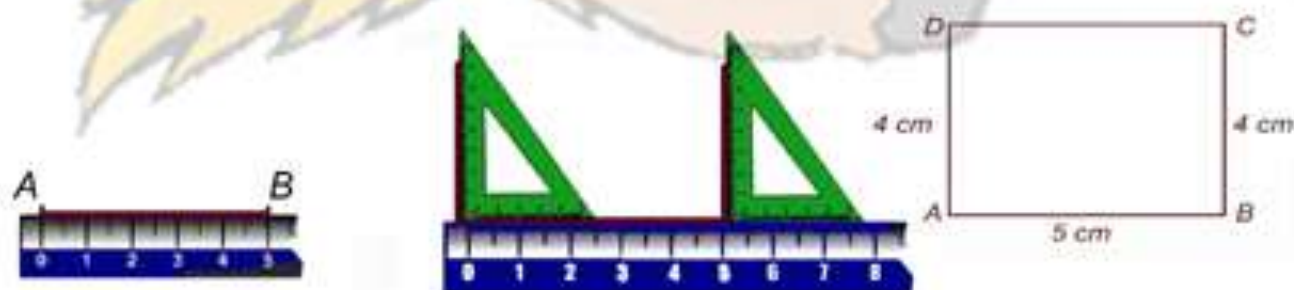
**Write only one difference between each of the following :**

- a** The square and the rectangle.  
.....  
.....
- b** The rhombus and the parallelogram.  
.....  
.....
- c** The square and the cube.  
.....  
.....

**Draw the square ABCD whose side length 3 cm long.**



**Draw the rectangle ABCD in which  $AB = 5$  cm and  $BC = 4$  cm.**



Draw the Square ABCD in which  $AB = 4$  cm, then complete.

$$AB = \dots = \dots = \dots = \dots \text{ cm.}$$

$$\overline{AB} \parallel \dots$$

$$\overline{BC} \parallel \dots$$

$$\overline{AB} \perp \dots$$

$$\overline{CD} \perp \dots$$

$$\overline{BD} \perp \dots$$

Draw the rectangle XYZL in which its dimensions are 5 cm and 2 cm, then complete.

$$XY = \dots = \dots \text{ cm}$$

$$YZ = \dots = \dots \text{ cm.}$$

$$\overline{XY} \parallel \dots \text{ and } \overline{XY} \perp \dots$$

$$\overline{YZ} \parallel \dots \text{ and } \overline{YZ} \perp \dots$$

Draw the rectangle XYZL in which its dimensions are **6** cm and **4** cm, then complete.

$$XY = \dots = \dots \text{ cm}$$

$$YZ = \dots = \dots \text{ cm.}$$

$$\overline{XY} \parallel \dots \text{ and } \overline{XY} \perp \dots$$

$$\overline{YZ} \parallel \dots \text{ and } \overline{YZ} \perp \dots$$



## The Triangle

The sum of the measures of the ( interior ) angles of a triangle =  $180^\circ$

1) In the triangle ABC , if  $m\angle A = 100^\circ$  ,  $m\angle B = 45^\circ$   
then  $m\angle C =$  \_\_\_\_\_

2) In the triangle XYZ, if  $m\angle X = m\angle Y$  and  $m\angle Z = 40^\circ$   
Find the measure of  $\angle X$  and  $\angle Y$

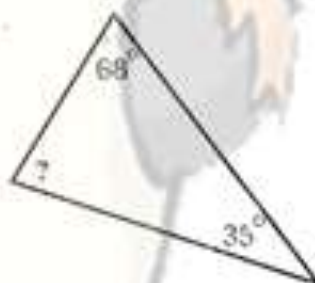
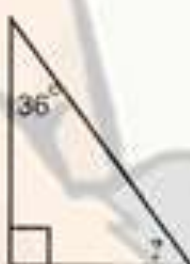
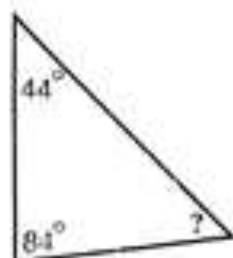
$$m\angle X + m\angle Y = \text{_____}$$

$$m\angle X = m\angle Y = \text{_____}$$

3) In the triangle XYZ, if  $m\angle X = m\angle Y = m\angle Z$   
Find the measure of  $\angle X$  ,  $\angle Y$  and  $\angle Z$

$$m\angle X = m\angle Y = m\angle Z = \text{_____}$$

In each of the following triangles , find the measure of the angle that marked with " ? " "without using the protractor"



Which of the following can be the angles of a triangle :

a  $m(\angle X) = 53^\circ$  ,  $m(\angle Y) = 72^\circ$  and  $m(\angle Z) = 55^\circ$

b  $m(\angle F) = 70^\circ$  ,  $m(\angle R) = 56^\circ$  and  $m(\angle H) = 60^\circ$

c  $m(\angle Q) = 33^\circ$  ,  $m(\angle S) = 44^\circ$  and  $m(\angle T) = 103^\circ$

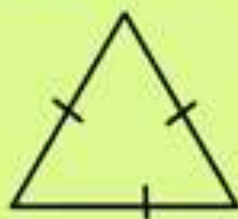
d  $m(\angle A) = m(\angle B) = 40^\circ$  and  $m(\angle C) = 88^\circ$

## Types of Triangles

- \* The triangle is a polygon that has three sides , three angles and three vertices.
- \* Any triangle has at least **two** acute angles.
- \* The sum of measures of the interior angles of a triangle is  $180^\circ$
- \* Any triangle can be classified according to :

The lengths of its sides

Equilateral triangle



All sides are equal

Isosceles triangle



Two sides only are equal

Scalene triangle



All sides are different

The measures of its angles

Right angled triangle



1 right angle  
2 acute angles

obtuse angled triangle



1 obtuse angle  
2 acute angles

acute angled triangle



3 acute angles

Measure then complete :

$AB = \dots \text{ cm}$  ,  $BC = \dots \text{ cm}$  ,  $AC = \dots \text{ cm}$

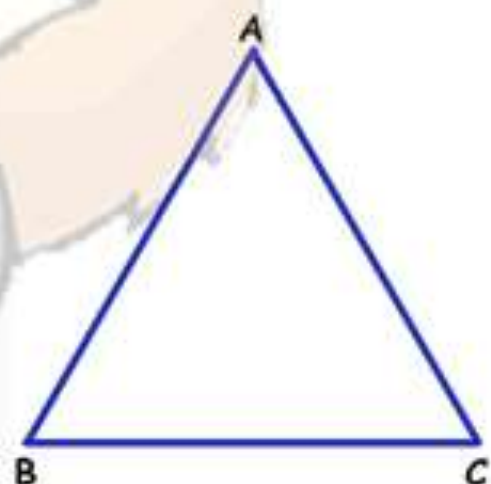
The type of triangle according to its **sides**

Is .....

$m\angle A = \dots$  ,  $m\angle B = \dots$  ,  $m\angle C = \dots$

The type of triangle according to its **angles**

Is .....





Measure then complete :

$XY = \dots\dots$  cm ,  $YZ = \dots\dots$  cm ,  $XZ = \dots\dots$  cm

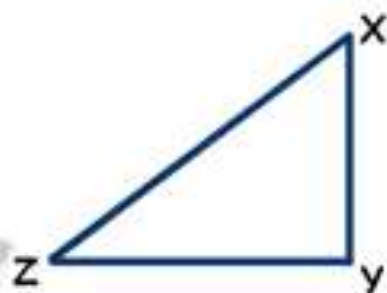
The type of triangle according to its sides

Is  $\dots\dots\dots$

$m\angle X = \dots\dots^\circ$  ,  $m\angle Y = \dots\dots^\circ$  ,  $m\angle Z = \dots\dots^\circ$

The type of triangle according to its angles

Is  $\dots\dots\dots$



Measure then complete :

$XY = \dots\dots$  cm ,  $YZ = \dots\dots$  cm ,  $XZ = \dots\dots$  cm

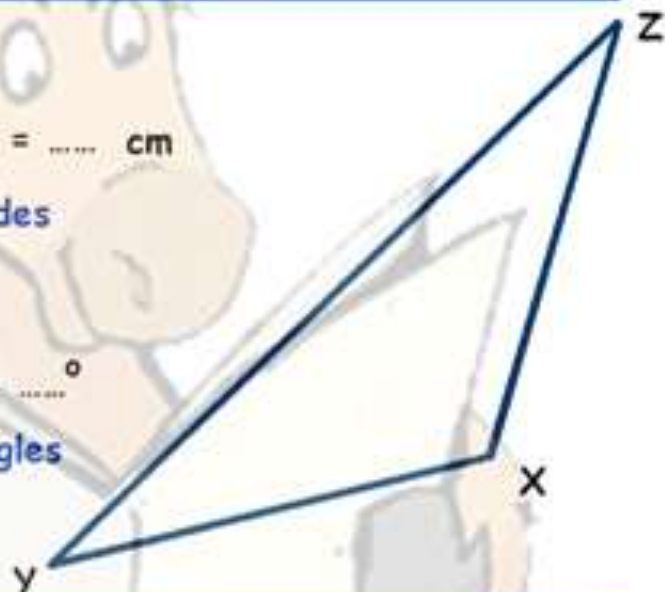
The type of triangle according to its sides

Is  $\dots\dots\dots$

$m\angle X = \dots\dots^\circ$  ,  $m\angle Y = \dots\dots^\circ$  ,  $m\angle Z = \dots\dots^\circ$

The type of triangle according to its angles

Is  $\dots\dots\dots$

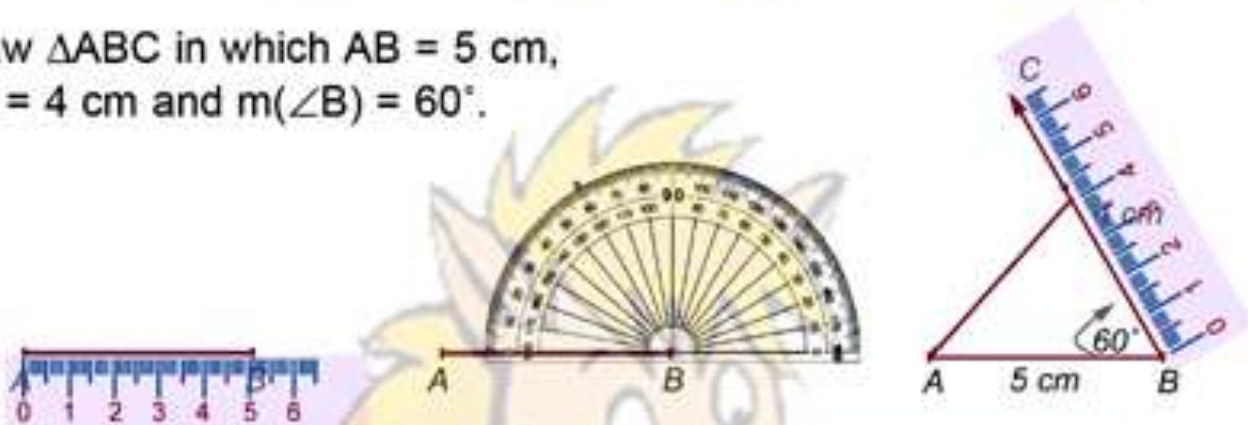


**Complete :**

- The triangle is a  $\dots\dots\dots$  that has  $\dots\dots$  sides and  $\dots\dots$  angles.
- The equilateral triangle is a triangle whose sides are  $\dots\dots\dots$
- If the side lengths of a triangle are different , then the triangle is called  $\dots\dots\dots$
- Any triangle has at least  $\dots\dots$  acute angles.
- The sum of measures of the two acute angles in the right-angled triangle is  $\dots\dots\dots$
- The triangle whose side lengths are 7 cm. , 4 cm. and 7 cm. is called  $\dots\dots\dots$  triangle.
- The triangle whose side lengths are 8 cm. , 6 cm. and 3 cm. is called  $\dots\dots\dots$  triangle.
- The triangle ABC is an equilateral triangle where  $AB = 5$  cm. , then  $AC = \dots\dots\dots$  cm. and  $BC = \dots\dots\dots$  cm.

**Drawing a Triangle given the Length of two of its Sides and the Measure of the Included Angle**

Draw  $\triangle ABC$  in which  $AB = 5$  cm,  
 $BC = 4$  cm and  $m(\angle B) = 60^\circ$ .



Draw  $\triangle XYZ$  in which  $XY = 7$  cm,  $YZ = 5$  cm and  $m(\angle Y) = 40^\circ$ .

Draw  $\triangle DEF$  in which  $\angle D$  is right,  $DE = 3$  cm and  $DF = 4$  cm.  
Measure the length of  $EF$ , then answer the following questions.

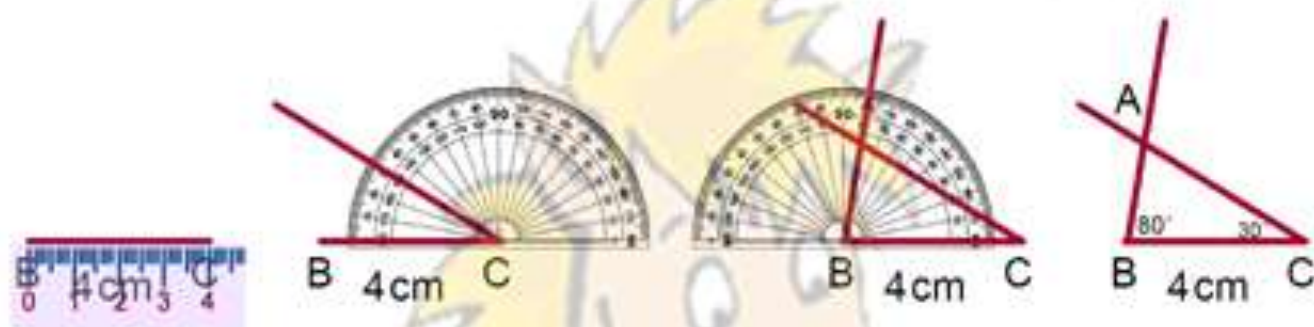
- the length of  $\overline{EF} = \dots\dots$  cm.
- the perimeter of  $\triangle DEF$   
= .....
- type of the triangle, according to
  - the measures of its angles  
.....
  - the length of its sides  
.....

.....



### Drawing a Triangle given the Length of One Side and the Measure of Two Angles

Draw  $\triangle ABC$  in which  $BC = 4$  cm,  $m(\angle B) = 30^\circ$  and  $m(\angle C) = 80^\circ$ .



Draw the triangle ABC in which  $\angle B$  is a right angle,  $m(\angle C) = 60^\circ$  and  $BC = 4$  cm. Measure  $\angle A$ .

Draw  $\triangle XYZ$  in which  $XY = 7$  cm,  $m(\angle X) = 100^\circ$ , and  $m(\angle Y) = 50^\circ$ . Measure  $\angle Z$ .

What is the type of the triangle XYZ according to the measures of its angles? .....

## Unit 2 General Exercises

- 1 Put (✓) for the correct statement and (X) for the incorrect one and correct the mistake.
- If ABC is a triangle in which  $m(\angle B) = 98^\circ$ , then it is possible to be a right-angled triangle. ( )
  - If XYZ is a triangle in which  $m(\angle X) = 100^\circ$  and  $m(\angle Y) = 58^\circ$ , then  $m(\angle Z) = 30^\circ$ . ( )
  - The rhombus is a quadrilateral in which all sides are equal in length. ( )
  - It is possible to draw a triangle given the measures of each of its angles. ( )

- 2 Join each figure to the suitable name.



Parallelogram

Rhombus

Rectangle

Square

Trapezium

- 3 Write only one difference between each of the following.

- a The square and the rectangle.

.....

.....

- b The triangle and the circle.

.....

.....

- c The rhombus and the parallelogram.

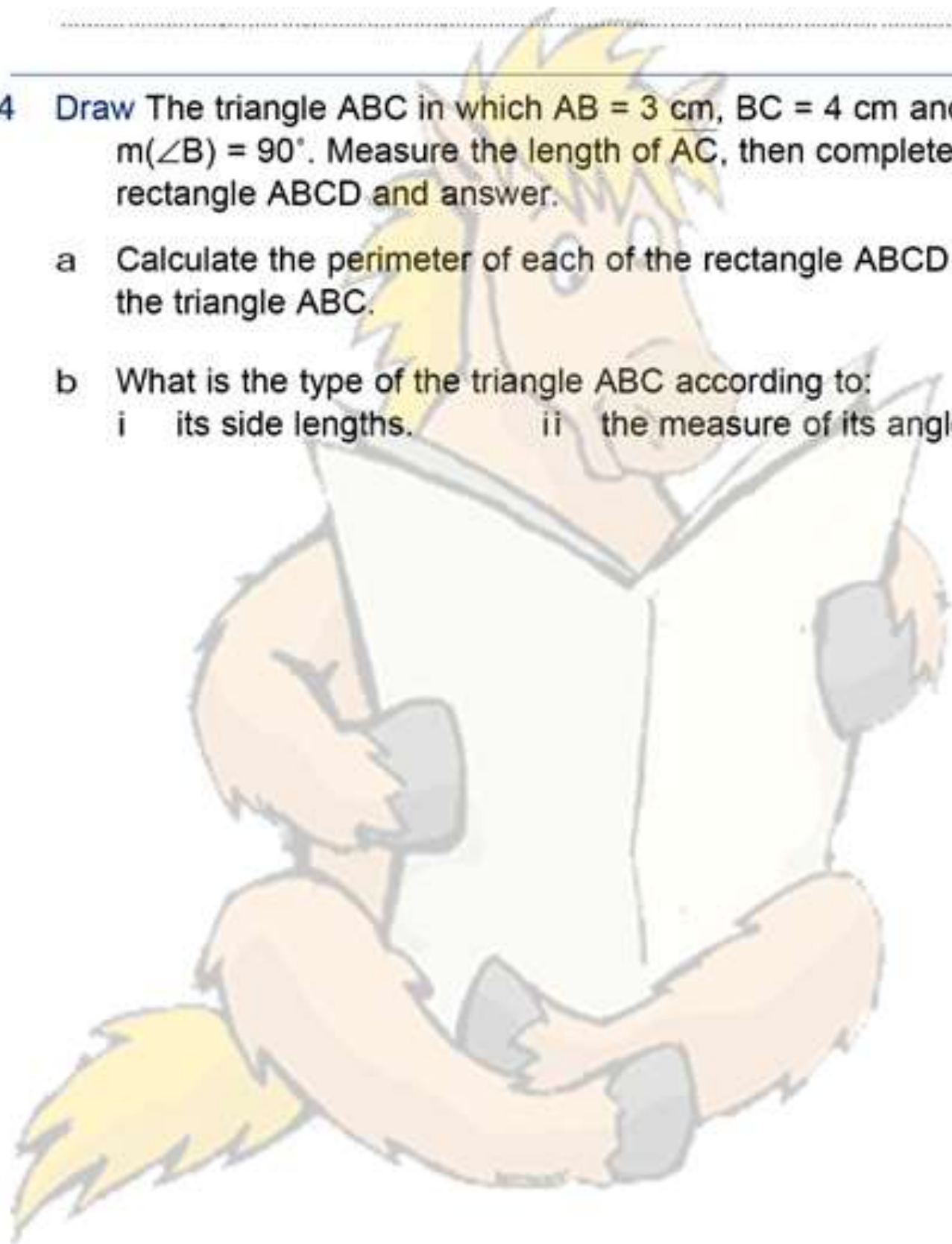
.....

.....



- d The square and the cube.

- 4 Draw The triangle ABC in which  $AB = 3\text{ cm}$ ,  $BC = 4\text{ cm}$  and  $m(\angle B) = 90^\circ$ . Measure the length of AC, then complete the rectangle ABCD and answer.
- a Calculate the perimeter of each of the rectangle ABCD and the triangle ABC.
- b What is the type of the triangle ABC according to:  
i its side lengths.                      ii the measure of its angles.



# Unit 3

## *Multiples, Factors and Divisibility*

**Lesson 1:** Multiples

**Lesson 2:** Divisibility

**Lesson 3:** Factors and Prime Numbers

**Lesson 4:** Common Factors

and Highest Common Factor (H.C.F.)

**Lesson 5:** Common Multiples

and Lowest Common Multiple (L.C.M.)



## Multiples

If a number is multiplied by 2 Then the product is a multiple of the number 2

$2 \times 5 = 10$  then 2 and 5 are factors of 10 10 is a multiple for 2 and 5

multiples of the number 2 are 0, 2, 4, 6, 8, .....

1) under line each number that is a multiple of the number 2 :

17, 25, 42, 78, 46, 35, 61, 10, 13, 45, 83

2) under line each number that is a multiple of the number 3 :

5, 15, 38, 63, 3, 0, 21, 10, 40, 93, 22

3) under line each number that is a multiple of the number 5 :

65, 52, 63, 15, 5, 8, 14, 10, 85, 45, 23

4) Write all multiples of the number 3 between 10 and 20 .

5) Write all multiples of the number 3 that less than 20 .

6) Complete with the multiples of the number 10 :

- |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| a) ..... < 24 < ..... | b) ..... < 8 < .....  | c) ..... < 43 < ..... |
| d) ..... < 76 < ..... | e) ..... < 28 < ..... | f) ..... < 12 < ..... |

7) Complete with the multiples of the number 10 :

- |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| a) ..... < 17 < ..... | b) ..... < 66 < ..... | c) ..... < 32 < ..... |
| d) ..... < 74 < ..... | e) ..... < 46 < ..... | f) ..... < 9 < .....  |

8) Write a number greater than 20 that is a multiple of the two numbers 2 and 4 also a multiple of their product 8.

The number is : .....



## Divisibility

$11 \div 3 = 3$  and the remainder is 2 [ infinite division ]

Then 11 is not divisible by 3

$12 \div 3 = 4$  and the remainder is 0 [ finite division ]

Then 12 is divisible by 3

All multiples of a number are divisible by this number

**Generally:**

Any number is divisible by another, if the remainder of the division operation is zero.

Complete the following table :

Division	Quotient	Remainder	Divisible / not divisible
45 $\div$ 5			45 5
60 $\div$ 7			60 7
35 $\div$ 4			35 4
28 $\div$ 7			28 7
120 $\div$ 4			120 4
29 $\div$ 5			29 5

The number is divisible by :

Remember	2	If its unit digit is ( 0 . 2 . 4 . 6 or 8 ) "even number "
	5	If its unit digit is ( 0 or 5 )
	10	If its unit digit is 0
	3	If the sum of its digit is divisible by 3
	6 2X3	If the number is divisible by 2 and 3 in the same time
	15 3X5	If the number is divisible by 3 and 5 in the same time



Circle the number which is divisible by 2

30      65      97      54      26      151      368  
45      212      127      641      258      654      239

Circle the number which is divisible by 3

45      36      28      456      558      652      100  
154      368      554      1002      2005      12748      445

Circle the number which is divisible by 5

45      36      250      156      558      354      101  
154      830      940      630      2005      12748      55551

use the following numbers to complete :

335      342      531      250      315      702      600

the numbers which are divisible by 2 : .....

the numbers which are divisible by 3 : .....

the numbers which are divisible by 5 : .....

the numbers which are divisible by 6 : .....

the numbers which are divisible by 10 : .....

the numbers which are divisible by 15 : .....

Complete the table using (✓) or (X) :

Number	Divisible by ...					
	2	3	5	6	10	15
45						
32						
24						
30						
126						
130						
120						
456						

## Factors and Prime Numbers

Find the factors of number 16 :

$$\begin{aligned} 16 &= 1 \times 16 \\ &= 2 \times 8 \\ &= 4 \times 4 \end{aligned}$$

the factors of 16 are 1 , 2 , 4 , 8 and 16

Do not repeat the numbers

The number one is a factor of all numbers  
Every number is a factor of itself  
All numbers are factors of zero except zero

Find the factors of each of the following numbers :

12 , 48

$$\begin{aligned} 12 &= \dots \times \dots \\ &= \dots \times \dots \\ &= \dots \times \dots \end{aligned}$$

The factors of 12 are

.....  
.....  
.....

$$\begin{aligned} 48 &= \dots \times \dots \\ &= \dots \times \dots \\ &= \dots \times \dots \\ &= \dots \times \dots \\ &= \dots \times \dots \end{aligned}$$

The factors of 48 are

.....  
.....

Write down 3 numbers which have 2 factors :

.....

Write down 3 numbers which have 3 factors :

.....



## Prime numbers

The number that has only two factors is called a prime number.

- \* The prime number is divisible by itself and the whole one.
- \* The whole one is not a prime number because it has only one factor
- \* The number Zero 6 is not a prime number because it has more than two factors
- \* All prime numbers are odd numbers except the number 2.

The prime numbers between		
0	2 , 3 , 5 , 7	10
10	11 , 13 , 17 , 19	20
20	23 , 29	30
30	31 , 37	40
40	41 , 43 , 47	50
50	53 , 59	60
60	61 , 67	70
70	71 , 73 , 79	80
80	83 , 89	90
90	97	100

Circle the prime numbers :

7 , 15 , 8 , 31 , 51 , 13

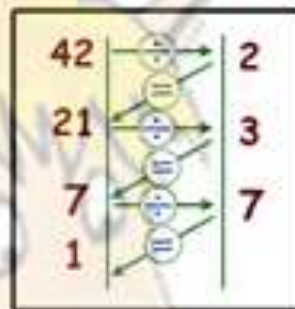
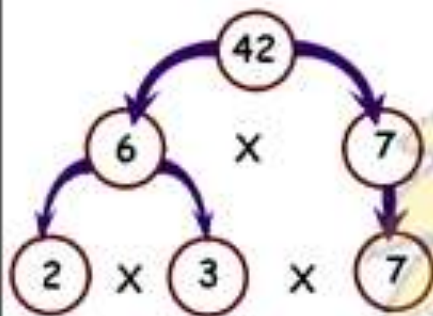
Write the prime numbers between 20 and 30 :

# Lesson 4

## Common Factors for Two or more Numbers and Highest Common Factor (H.C.F.)

The highest common factor (H.C.F.) for a group of numbers is the highest number that all the numbers are divisible by.

Factorize the following numbers to its prime factors



42 | 2  
21 | 3  
7 | 7  
1

$$42 = 2 \times 3 \times 7$$

Factorize the following numbers to its prime factors:

24

24

$$24 = \dots \times \dots \times \dots \times \dots$$

18

18

$$18 = \dots \times \dots \times \dots$$

100

100

$$100 = \dots \times \dots \times \dots \times \dots$$

45

45

$$45 = \dots \times \dots \times \dots \times \dots$$

What is the number which has these prime factors 2 , 2 , 3 and 5

Mr. Mohamed Nasr El Din



**H**ighest **C**ommon **F**actor  
H.C.F.

Find the common factors for 24 and 36, then find H.C.F.

$$\begin{aligned} 24 &= 1 \times 24 \\ &= 2 \times 12 \\ &= 3 \times 8 \\ &= 4 \times 6 \end{aligned}$$

$$\begin{aligned} 36 &= 1 \times 36 \\ &= 2 \times 18 \\ &= 3 \times 12 \\ &= 4 \times 9 \\ &= 6 \times 6 \end{aligned}$$

Factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24

Factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36

Common Factors are 1, 2, 3, 4, 6 and 12

H.C.F. = 12

Find the H.C.F. for 24 and 36:

$$\begin{aligned} 24 &= 2 \times 2 \times 2 \times 3 \\ 36 &= 2 \times 2 \times 3 \times 3 \\ \hline \text{H.C.F.} &= 2 \times 2 \times 3 = 12 \end{aligned}$$

24	2	36	2
12	2	18	2
6	2	9	3
3	3	3	3
1		1	

Find the H.C.F. for 20 and 30:

$$20 = \dots\dots\dots$$

$$30 = \dots\dots\dots$$

$$\text{H.C.F.} = \dots\dots\dots$$

20	30

Find the common factors for 42, 14 and 28, then find H.C.F.

$$\begin{aligned} 42 &= 1 \times 42 \\ &= 2 \times 21 \\ &= 3 \times 14 \\ &= 6 \times 7 \end{aligned}$$

$$\begin{aligned} 14 &= 1 \times 14 \\ &= 2 \times 7 \end{aligned}$$

$$\begin{aligned} 28 &= 1 \times 28 \\ &= 2 \times 14 \\ &= 4 \times 7 \end{aligned}$$

Factors of 42 are 1, 2, 3, 6, 7, 14, 21 and 42

Factors of 14 are 1, 2, 7, and 14

Factors of 28 are 1, 2, 4, 7, 14, and 28

Common Factors are 1, 2, 7 and 14

H.C.F. = 14

Find the H.C.F. for 42, 14 and 28.

$$\begin{array}{rcl} 42 & = & 2 \times 3 \times 7 \\ 14 & = & 2 \times 7 \\ 28 & = & 2 \times 7 \times 2 \\ \hline \text{H.C.F.} & = & 2 \times 7 = 14 \end{array}$$

$$\begin{array}{r|l} 42 & 2 \\ \hline 21 & 3 \\ 7 & 7 \\ 1 & \end{array} \quad \begin{array}{r|l} 14 & 2 \\ \hline 7 & 7 \\ 1 & \end{array} \quad \begin{array}{r|l} 28 & 2 \\ \hline 14 & 2 \\ 7 & 7 \\ 1 & \end{array}$$

Find the H.C.F. for 18, 27 and 45.

$$18 = \dots\dots\dots$$

$$27 = \dots\dots\dots$$

$$45 = \dots\dots\dots$$

$$\text{H.C.F.} = \dots\dots\dots$$



Find the H.C.F. for 28 and 42:

.....

.....

.....

.....

.....

.....

.....

Find the H.C.F. for 32 and 48:

.....

.....

.....

.....

.....

.....

.....

Find the H.C.F. for 12 , 24 and 36.

.....

.....

.....

.....

.....

.....

.....

.....

Find the H.C.F. for 30 , 45 and 60

.....

.....

.....

.....

.....

.....

.....

# Lesson

# 5

## Common Multiples for Two or more Numbers and Lowest Common Multiples (L.C.M.)

Lowest Common Multiple  
L.C.M.

The lowest common multiple for a group of numbers is the smallest number (other than zero) that is divisible by each of these numbers, then it is a multiple for each of these numbers individually and is abbreviated as L.C.M.

Write all common multiples for the numbers 4 and 6 up to 30

Multiples for 4 are : 0 , 4 , 8 , 12 , 16 , 20 , 24 and 28

Multiples for 6 are : 0 , 6 , 12 , 18 , 24 and 30

Common Multiples are : 0 , 12 and 24

L.C.M = 12

Write all common multiples for the numbers 5 , 4 and 10 up to 40

Multiples for 5 are : 0 , 5 , 10 , 15 , 20 , 25 , 30 , 35 and 40

Multiples for 4 are : 0 , 4 , 8 , 12 , 16 , 20 , 24 , 28 , 32 , 36 and 40

Multiples for 10 are : 0 , 10 , 20 , 30 and 40

Common Multiples are : 0 , 20 and 40

L.C.M = 20



Find H.C.F. and L.C.M for 24 and 36

$$\begin{aligned}
 24 &= 2 \times 2 \times 2 \times 3 \\
 36 &= 2 \times 2 \times 3 \times 3 \\
 \hline
 \text{H.C.F.} &= 2 \times 2 \times 3 = 12 \\
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 3 \times 3 = 72
 \end{aligned}$$

24	2	36	2
12	2	18	2
6	2	9	3
3	3	3	3
1		1	

Find H.C.F. and L.C.M for 24, 12 and 16

$$\begin{aligned}
 24 &= 2 \times 2 \times 2 \times 3 \\
 12 &= 2 \times 2 \times 3 \\
 16 &= 2 \times 2 \times 2 \times 2 \\
 \hline
 \text{H.C.F.} &= 2 \times 2 = 4 \\
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 3 \times 2 = 48
 \end{aligned}$$

24	2	12	2	16	2
12	2	6	2	8	2
6	2	3	3	4	2
3	3	1		2	2
1				1	

Find H.C.F. and L.C.M for :

a) 25 and 10

$$25 = \dots\dots\dots$$

$$10 = \dots\dots\dots$$

$$\text{H.C.F.} = \dots\dots\dots$$

$$\text{L.C.M} = \dots\dots\dots$$

b) 15, 30 and 20

$$15 = \dots\dots\dots$$

$$30 = \dots\dots\dots$$

$$20 = \dots\dots\dots$$

$$\text{H.C.F.} = \dots\dots\dots$$

$$\text{L.C.M} = \dots\dots\dots$$

Find the L.C.M. for the numbers  $(2 \times 3 \times 7)$  and  $(3 \times 3 \times 7)$ .

Find the L.C.M. for the numbers  $(2 \times 15)$  and  $(5 \times 12)$ .

Put (✓) for the correct statement and (X) for the incorrect one and correct the mistake.

- a The number 63 is divisible by 6. ( )
- b The number 17 is a prime number. ( )
- c 0 and 7 are multiples of the number 7. ( )
- d The H.C.F. for the two numbers 8 and 24 is 4. ( )
- e The L.C.M. for the two numbers 8 and 24 is 8. ( )

Complete.

- a The multiples of 6 which are between 20 and 40 are .....
- b The factors of the number 35 are .....



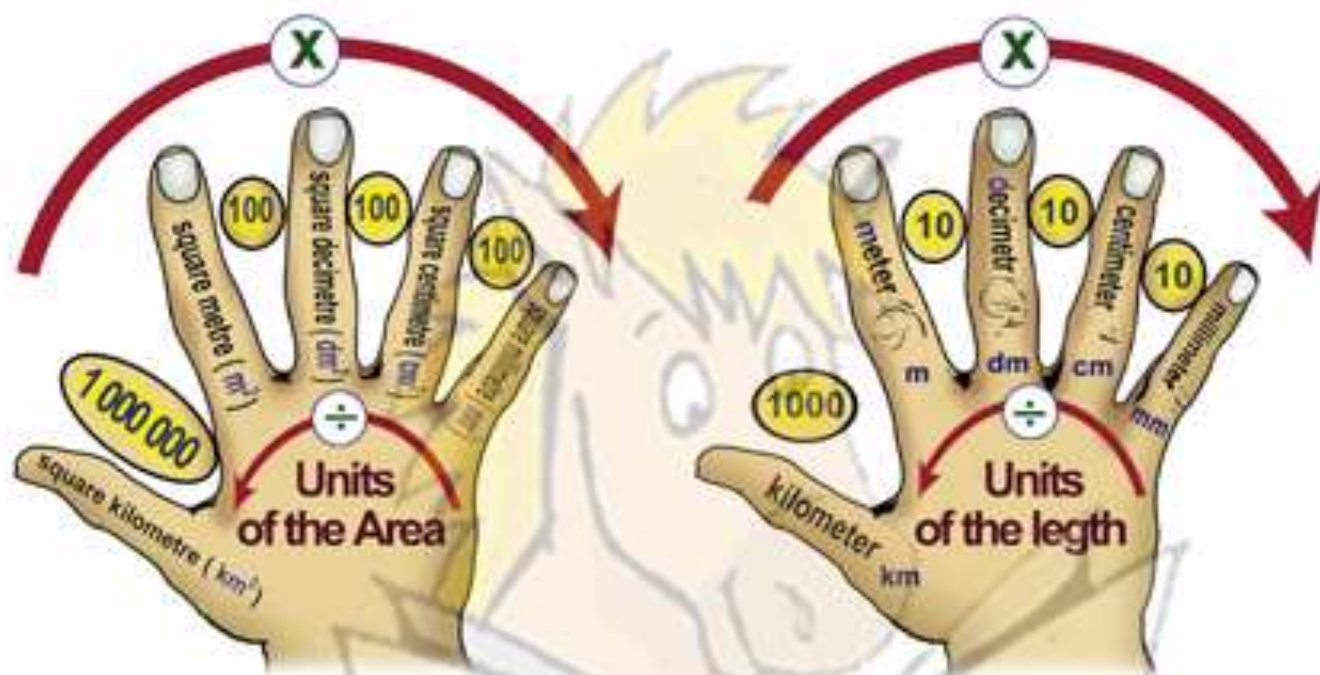
# Unit 4

## Measurement

**Lesson 1:** Lengths

**Lesson 2:** Areas

# The Pertimeter & The Area



## The square

The perimeter = Side length X 4

The side length = Perimeter ÷ 4

The area = Side length X Side length ( itself )

$$P = S \times 4$$

$$S = P \div 4$$

$$A = S \times S$$

## The Rectangle

The perimeter = ( Length + Width ) X 2

The length = ( perimeter ÷ 2 ) - the width

The width = ( perimeter ÷ 2 ) - the length

The area = Length X width

The length = the area ÷ the width

The width = The area ÷ the length

$$P = (L + W) \times 2$$

$$L = \frac{P}{2} - W$$

$$W = \frac{P}{2} - L$$

$$A = L \times W$$

$$L = A \div W$$

$$W = A \div L$$



# Lesson

# 1

## Lengths

Complete.

3 metres = ..... centimetres	..... cm = 40 mm
4 metres = ..... centimetres	..... cm = 60 mm
..... metres = 700 centimetres	35 dm = ..... cm
..... metres = 300 centimetres	9000 m = ..... km
... dm = 70 cm = ..... mm	2 cm = ..... mm
... dm = ... cm = 600 mm	..... m = 400 cm
3 dm = ..... cm = ..... mm	5 dm = ..... cm
8 km = ..... m = ..... dm	3 km = ..... m

Choose the suitable unit to measure each of the following.

- The distance between Cairo and Alexandria. (mm, dm, km)
- The height of a building. (mm, dm, m)
- The height of a man. (km, cm, mm)
- The length of an ant. (km, mm, m)

Choose the closest answer.

- The length of a taxi = ..... (2 km, 20 m, 200 cm)
- The length of my pen = ..... ( $\frac{1}{2}$  km, 15 dm, 15 cm)
- The height of my brother = ..... (3 m, 160 cm, 160 mm)
- My mother bought a piece of cloth of length = ..... (3 km, 3 m, 3 cm, 3 mm)

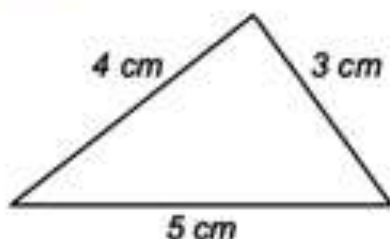
Complete using a suitable sign  $<$ ,  $>$ , or  $=$  in each  $\square$ .

$$3 \text{ km } \square 300 \text{ m}$$

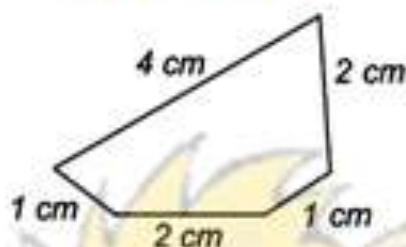
$$8 \text{ dm } \square 80 \text{ cm}$$

$$5 \text{ 000 mm } \square 5 \text{ metres}$$

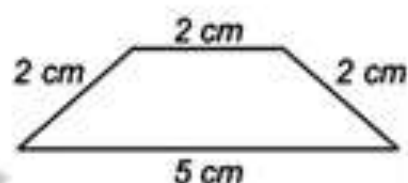
$$6 \text{ km } \square 75 \text{ 000 cm}$$



Perimeter of the triangle  
= ..... cm



Perimeter of the  
polygon = ..... cm



Perimeter of the  
polygon = ..... cm

[1] Find the perimeter of a square with side length 6 cm.

[2] Find the perimeter of a rectangle whose dimensions are 8 cm. and 5 cm.

[3] The perimeter of a square is 32 cm . Find The sidel length

[4] The perimeter of a rectangle is 28cm. and its length = 10cm Find : The width

[5] If the sum of the perimeters of two squares is 48 cm.  
and the side length of one of them is 7 cm.  
Find the side length of the second square.



# The Area

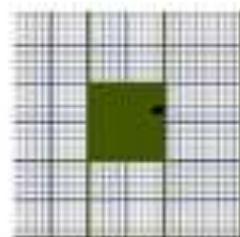
The square centimetre  $\text{cm}^2$

is the area of a square of side length 1 cm

The square decimetre =  $100 \text{ cm}^2$

The square metre =  $100 \text{ dm}^2 = 10\,000 \text{ cm}^2$

the square kilometre =  $1\,000\,000 \text{ m}^2$



Choose the suitable unit to measure each of the following.

- a Area of the floor of the room. ( $\text{km}^2$ ,  $\text{dm}^2$ ,  $\text{cm}^2$ ,  $\text{m}^2$ )
- b Area of the agricultural land in Egypt. ( $\text{km}^2$ ,  $\text{dm}^2$ ,  $\text{cm}^2$ ,  $\text{m}^2$ )
- c Area of the surface of a book page. ( $\text{km}^2$ ,  $\text{cm}^2$ ,  $\text{m}^2$ )
- d Area of the playground of your school. ( $\text{km}^2$ ,  $\text{cm}^2$ ,  $\text{m}^2$ ,  $\text{dm}^2$ )
- e Area of the eastern desert. ( $\text{km}^2$ ,  $\text{cm}^2$ ,  $\text{dm}^2$ )

Choose the closest answer.

- a Area of the flat which I live in is .....  
( $75 \text{ km}^2$ ,  $75 \text{ cm}^2$ ,  $75 \text{ m}^2$ ,  $75 \text{ dm}^2$ )
- b Area of the classroom in our school is .....  
( $24 \text{ m}^2$ ,  $24 \text{ cm}^2$ ,  $24 \text{ km}^2$ )
- c A pupil in Primary 4 used his geometric instruments to draw a rectangle whose area is .....  
( $12 \text{ m}^2$ ,  $12 \text{ dm}^2$ ,  $12 \text{ cm}^2$ )
- d Area of the tile used in tiling our house is .....  
( $25 \text{ dm}^2$ ,  $25 \text{ cm}^2$ ,  $25 \text{ m}^2$ )

Complete.

$$3 \text{ m}^2 = \dots\dots\dots \text{dm}^2$$

$$\frac{1}{2} \text{ km}^2 = \dots\dots\dots \text{m}^2$$

$$920\,000 \text{ cm}^2 = \dots\dots\dots \text{m}^2$$

$$70 \text{ m}^2 = \dots\dots\dots \text{cm}^2$$

$$2\,000 \text{ dm}^2 = \dots\dots\dots \text{m}^2$$

$$6\,000\,000 \text{ m}^2 = \dots\dots\dots \text{km}^2$$

[1] Find the area and the perimeter of a square with side length 6 cm.

[2] Find the area and the perimeter of a rectangle whose dimensions are 8 cm. and 5 cm.

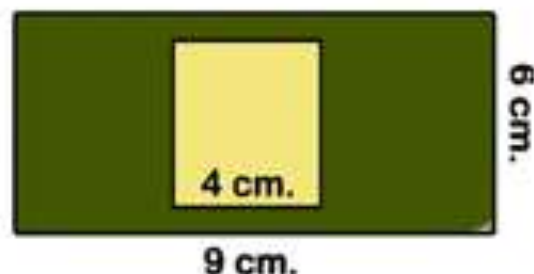
[3] The perimeter of a square is 32 cm . Find  
(a) The side length (b) The area.

[4] The perimeter of a rectangle is 28cm. and its length = 10cm  
Find : (a) The width (b) The area .

[5] The area of a rectangle is 48 cm<sup>2</sup>. and its width = 6 cm.  
Find: (a) The length. (b) the perimeter .



- [6] The drawn figure is a rectangle whose dimensions are 9 cm. and 6 cm.  
A square of side length 4 cm. is cut from it.  
Calculate : The area of the remaining part



- [7] If we have a rectangular-shape hall whose dimensions are 8 metres and 6 metres, how many tiles are needed to tile this hall , given that the side length of the required squared-shape tiles is 20 cm. ?

- [8] It is wanted to make a frame to a rectangular-shaped picture whose dimensions are 40 cm. and 60 cm. If the cost of one metre of the frame is 3 pounds , what is the cost of the frame ?